Comments of the Natural Resources Defense Council (NRDC)
on the
CEC Draft Reports

Integrated Energy Policy Report Workshops, February 25 and 26, 2003
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NRDC appreciates the opportunity to offer these comments on the CEC Staff Draft Reports. We commend the CEC Staff for the considerable effort involved in creating these Draft Reports, and we thank them for eagerly soliciting public input as the Drafts are revised. NRDC urges the CEC to continue to provide opportunities for public input as it prepares the Integrated Energy Policy Report (IEPR), and we urge the CEC to make every effort to provide detailed information on the assumptions, inputs and results that will form the basis of the IEPR.

1. California Energy Demand 2003-2013 Forecast ("Draft Demand Forecast")

A. **The CEC's baseline demand forecast must include, at an absolute minimum, the energy and demand savings from the Public Goods Charge (PGC)-funded energy efficiency programs, and should include considerable additional energy and demand savings due to California's recent restoration of the utilities' portfolio management responsibility.** The CEC's baseline demand forecast must include, at an absolute minimum, the energy and demand savings from the PGC-funded energy efficiency programs. The investor-owned utilities are required by statute to invest a minimum of $228 million per year in electric energy efficiency programs,[1] so it would be inconceivable for the CEC's baseline or "best estimate" electricity demand forecast to exclude the considerable savings expected from these programs as the Draft Demand Forecast does. In addition, California's publicly-owned utilities spend considerable amounts each year on energy efficiency that should not be excluded from the demand forecast.

More realistically, the CEC's baseline demand forecast should include considerable energy and demand savings above and beyond the savings from the PGC-funded programs due to California's recent restoration of the utilities' portfolio management responsibility. The CEC's best estimate for future demand should include the likely increased levels of investment in energy efficiency due to California's policy that "utilities should seek to exploit all practicable and cost-effective conservation and improvements in the efficiency of energy use and distribution" and the PUC's requirement that the utilities "consider investment in all cost-effective energy efficiency, regardless of the limitations of funding through the public goods charge (PGC) mechanism."[2] Recent estimates of the potential for the utilities to exploit cost-effective energy efficiency in California indicate that the utilities could *quadruple* investments in energy efficiency and still not exhaust the pool of available resources.[3] The CEC's demand forecast should reflect the likelihood that the utilities will

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[1] California Public Utilities Code Section 399.8(d)1
[2] California Public Utilities Code Section 701.1(b) and PUC Decision 02-10-062.
[3] Rufo and Coito, Xenergy Inc., *California's Secret Energy Surplus: The Potential for Energy Efficiency*, 2002. Available at www.energyfoundation.org/energyseries.cfm.

pursue a significant amount of additional energy efficiency resources as the least-cost option available for procurement.

The CEC's rationales for excluding the impact of energy efficiency programs in 2003 and beyond provided in the Draft Demand Forecast are: (1) the amount and allocation of efficiency funding is uncertain, and (2) it "eliminates concern about double counting of energy savings when comparing proposed 2003 program savings with the Energy Commission forecast."[4] As we discussed above, the absolute minimum amount of energy efficiency funding going forward is entirely certain and is specified in statute, and must therefore be included in the CEC's baseline forecast at a minimum. And while we appreciate the CEC's concern regarding the need to avoid double counting the energy savings from future energy efficiency programs, we suggest the solution is to simply provide detailed information on the energy and demand savings assumed to come from specified energy efficiency programs that are included in the forecast. Providing a detailed level of information will ensure that the assumptions implicit in the forecast are transparent and will avoid the potential for double counting efficiency program savings.

We wish to emphasize that in the Draft Demand Forecast's current form, it provides a misleadingly pessimistic forecast of very high growth in electricity use in California, rather than a "best estimate" of demand given the CEC's current state of knowledge. Together with the draft "resource plan" contained in the CEC's *Preliminary Electricity and Natural Gas Infrastructure Assumptions* report, which takes the demand forecast as "given" and develops supply-side resources to meet the demand, these Drafts paint a "worst-case" scenario for electricity demand growth and new power plant and transmission line construction in California, and ignores policies and directives given in Senate Bill 1194, Assembly Bill 57, and the PUC's Decision 02-10-062. And, of course, this "worst-case" scenario would be accompanied by considerable burdens on California's air, land and water resources, California's economy, and on Californians' health. NRDC urges the CEC to develop a demand forecast that takes into account California's policies to encourage utilities to capture cost-effective energy efficiency resources, and to create a baseline demand forecast that includes the effect of these successful energy efficiency programs.

B. **The natural gas demand forecast should include the savings from natural gas energy efficiency programs.** Similar to the electricity demand forecast, the CEC's natural gas forecast should include the expected savings from energy efficiency programs. Assembly Bill 1002 requires the utilities to invest in natural gas energy efficiency programs, and PUC proceeding R.02-10-001 is underway to implement AB 1002. We also encourage the CEC to assess the potential for natural gas energy efficiency in California, as CEC staff indicated the CEC plans to do in another section of the IEPR report.

C. **Energy efficiency is best accounted for in the demand forecasts rather than in the supply resource plans.** For several reasons, we believe that the best way for the CEC to incorporate energy efficiency into the IEPR is to include the energy and demand savings in the demand forecasts.

[4] Draft Demand Forecast report, p. 1

- The demand forecasts are used as inputs to many other parts of the resource plan, so excluding energy efficiency impacts from the demand forecasts could skew the results of the transmission infrastructure plan and the natural gas infrastructure plan, for example.
- The PUC's policy (in addition to other California policies) is that cost-effective energy efficiency should be the first resource used by utilities. At the PUC's recent pre-hearing conference on the utilities' long-term procurement plans, ALJ Walwyn reiterated Commission policy that "each utility's long-term plan should reflect the Commission's policy preference that the resource adequacy be first met through cost-effective energy-efficiency programs..."[5] Thus, it would make sense for the CEC to take energy and demand savings from cost-effective energy efficiency right off the top of the demand forecast before creating the supply resource plan.
- Including the energy efficiency savings in the demand forecast will bring the forecast closer to reality and will make the forecast easier for the public to understand. The media has already reported that electricity demand will grow at 2% per year in California based on the Draft Demand Forecast. If energy efficiency is considered on the "supply" side of the resource plan and the demand forecast continues to state that per capita consumption is expected to grow in California despite decades of success at keeping per capita consumption fairly constant, the public will have the impression that California has decreased its commitment to energy efficiency, when in fact the opposite is true.

D. **The CEC should not delay the utilities' resumption of long-term procurement responsibilities in order to incorporate the results of this IEPR.** It is critical that California's utilities begin taking advantage of all cost-effective energy efficiency opportunities as soon as possible. NRDC is concerned that the CEC may delay the utilities from increasing sorely-needed investments in energy efficiency through the interaction between the CEC's participation in the PUC's procurement proceeding, and this IEPR process. CEC staff recently suggested at the PUC's pre-hearing conference on utility procurement that the PUC postpone resolution of the utilities' long-term procurement plans until the CEC has an opportunity to complete the IEPR.[6] At the same time, the CEC's Draft Demand Forecast states: "Depending on the timing and amount of information available, staff may use the investor-owned utilities' procurement plans as a starting point for assumptions about high and low energy efficiency savings."[7] Taken together, these remarks suggest a delay of uncertain duration, during which California continues to lose opportunities to take advantage of cost-effective energy efficiency to the detriment of both utility customers and the environment. California cannot afford to wait. California has policies in place to encourage utility investment in energy efficiency, and the CEC has in hand recent estimates of how much cost-effective energy efficiency is available in California.[8] We believe the CEC will have adequate time to integrate the preliminary information from the utilities long-term procurement plans into the IEPR where appropriate, and we urge the CEC not to delay the utilities' resumption of long-term procurement responsibilities.

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[5] Transcript of PUC pre-hearing conference in R.01-10-024 on February 18, 2003, p. 101 at line 26

[6] See Mike Jaske's remarks on the transcript of the PUC pre-hearing conference in R.01-10-024 on February 18, 2003, p. 117 beginning at line 5.

[7] Draft Demand Forecast, p. 15

[8] Xenergy recently completed a study of the potential for energy efficiency in California. Rufo and Coito, Xenergy Inc., *California's Secret Energy Surplus: The Potential for Energy Efficiency*, 2002. Available at www.energyfoundation.org/energyseries.cfm.

E. **NRDC suggests the CEC develop at least two additional energy efficiency scenarios, in addition to the baseline or "best estimate" demand forecast.** We suggest the following three scenarios:

- High demand scenario: the utilities only invest the minimum amount of PGC funding required by law in energy efficiency programs.
- Baseline forecast: the utilities invest the amount of PGC funding required in statute plus additional procurement money in energy efficiency. If the CEC were to use Xenergy's recent study of the potential for cost-effective energy efficiency savings in California that are achievable through utility programs, this would result in about 5,900 MW of savings by 2012.[9]
- Low demand scenario: the utilities capture *all* cost-effective energy efficiency resources. If the CEC were to use Xenergy's recent study of the potential for cost-effective energy efficiency savings in California, this would result in about 9,600 MW of savings by 2012.[10]

F. **The Demand Forecast should include the savings from the CEC's energy efficiency standards.** The forecast should delineate the amount of savings that are assumed to come from the recently enacted appliance standards, and should include the anticipated effect of the 2005 update of the building standards.

G. **The Demand Forecast should break out how much of the voluntary conservation (both peak demand and energy savings) from 2001 is assumed to persist, and how much of the conservation of 2001 is assumed to be hardwired.** The graph on page 16 of Lynn Marshall's presentation at the February 25'th workshop shows the change in electricity consumption during the crisis. Additional information such as this, with the addition of 2002 data, would be a valuable addition to the report.

H. **The CEC may want to include scenarios that look at variation in the amount of "private supply" generation.** The Draft Demand Forecast assumes an increase of only 173 MW of distributed generation (DG) over the next decade, which is only 50% more capacity than the DG that was installed in the year 2001 *alone*. The Draft Demand Forecast notes that its estimate of the amount of "private supply" is highly uncertain, and so this issue may deserve additional attention in the final forecast's scenarios.

2. Preliminary Electricity and Natural Gas Infrastructure Assumptions ("Resource Plan Report")

A. **The CEC should not allow energy efficiency to "fall through the cracks."** The introduction to the draft Resource Plan Report states that "the report is based on the assumption that electricity demand is the driving force behind future electricity generation, electricity transmission, and natural gas improvements and additions," and that the "Energy

[9] Ibid.
[10] Ibid.

Commission staff do not offer [the Resource Plan] as a 'most likely' set of changes to the region's electricity infrastructure, but merely as one plausible and well-reasoned set."[11] While we do not object to the Resource Plan Report assuming that demand for electricity is provided by the Demand Forecast, we note that between the two reports, as we discussed above, energy efficiency has fallen through the cracks. And although CEC staff and some workshop participants thought that part of the energy efficiency programs should be included in the resource plan, the current draft Resource Plan Report does not mention energy efficiency as a resource (in fact, the chapter is titled "Electricity Generation Infrastructure") and instead assumes it was included in the demand forecast. Given that energy efficiency was not included in the Draft Demand Forecast, it is not credible that a "plausible and well-reasoned" resource plan would completely omit energy efficiency resources – the cheapest, cleanest resources available – going forward.

B. **The Resource Plan should clearly indicate whether it is intended to be the CEC's best estimate of what is mostly likely to occur, or whether it is a rational resource plan of what the CEC believes *should* occur.** The latter type of plan would include consideration of numerous factors including, for example, the resource plan's climate change impact, public health impacts, and the security concerns it creates or alleviates. The difference between these two hypothetical plans – what the CEC expects to happen, and what the CEC believes should happen – illuminates policy changes that need to be made in order for the two visions to converge. The first question attached to the Committee's Scoping Order of December 16'th gets at the heart of this issue. We encourage the CEC to be more explicit in its Resource Plan Report in identifying which question the resource plan is intended to answer.

C. **The Resource Plan Report omits one of California's key infrastructures in assessing the adequacy of various energy infrastructures in California: the energy efficiency infrastructure.** Like transmission lines and power plants, California's energy efficiency infrastructure (a collection of institutions, policies, and energy efficiency experts) is critical to the state's welfare and to maintain affordable and reliable energy services. With this robust infrastructure in place thanks to years of utility customer support, energy efficiency and conservation rushed to the rescue during California's electricity crisis, helping prevent hours of economically-crippling blackouts (and doing so for less than half of what it would have cost to purchase the saved electricity). California's energy efficiency infrastructure, like any other critical infrastructure, must be properly maintained so that it can be called upon when needed. California should be particularly attentive to the value of making sustained investments in the energy efficiency infrastructure today to prevent the crises of tomorrow.

Fortunately for all California residents and businesses, California's energy efficiency infrastructure was robust enough to quickly deliver significant conservation and energy efficiency resources to help calm the electricity crisis in 2001. However, years of relative neglect of the energy efficiency infrastructure during the mid- and late-1990's undoubtedly contributed to the overstressed and vulnerable electricity system that led to the crisis. A commitment to sustained funding for California's energy efficiency infrastructure, with a

[11] Resource Plan Report, p. 1-2

stable base of funding and additional procurement of energy efficiency resources as needed, will help reduce the risk that California ever faces such a crisis again.

We urge the CEC to expand its mental image of California's infrastructure as a "three-legged stool" (consisting of electricity generation, transmission, and natural gas infrastructure) to a "four-legged chair" that includes the energy efficiency infrastructure. The Committee's Scoping Order of December 16'th defines the term 'energy infrastructure' "to capture the full range of investment in energy production, transmission, distribution, and demand," so perhaps these comments are premature and the CEC intended to include the energy efficiency infrastructure in another part of the report that has yet to be released.[12] We urge the CEC to include an assessment of the "health" of California's energy efficiency infrastructure along with its assessments of California's other key energy infrastructures.

D. **The CEC should ensure that demand forecasts for the Northwest and Southwest regions include the savings from energy efficiency programs in those regions.** At the February 26'th workshop, CEC staff noted that the vendors who provide the demand forecasts for the rest of the Western region do not denote whether the forecasts include the savings from ongoing and future energy efficiency programs. To ensure the forecasts are as accurate as possible, the CEC should include the impact of energy efficiency programs.

E. **We urge the CEC to make all assumptions transparent and readily available.** There was a fair amount of discussion at the workshops about the reserve margin used to determine the generation resource plan. In our understanding, CEC staff did not want to present the actual percentage reserve margins used in order to avoid a lengthy debate about the appropriateness of the reserve margin, especially because the matter is being debated in other forums in California. We certainly understand staff's desire not to get bogged down in a debate about the appropriate reserve margin, however, making the reserve margin an invisible (or hard to access) assumption does not help smooth the IEPR process. We use this as an example to urge the CEC to make all assumptions transparent and easy to access. We appreciate the CEC's efforts to achieve transparency so far, and we believe it will help the public understand the CEC's IEPR reports quickly and speed the process.

3. California Investor-Owned Utilities Retail Electricity Price Outlook 2003-2013 & California Municipal Utilities Retail Electricity Price Outlook 2003-2013 ("Price Outlook Reports")

A. **NRDC strongly urges the CEC to include forecasts of average customer bills (by sector) in the Price Outlook Reports, in addition to the commodity price forecasts.** While commodity prices forecasts are important, California has long recognized that utilities fundamentally provide their customers with energy services (e.g., light, heat, etc.) and not energy commodities (kWh's of electricity and therms of natural gas) for their own sake. Most customers care more about the total amount they must pay to receive energy services than about the price of each commodity unit of energy. For example, if one asked a neighbor how much s/he pays for electricity, the neighbor could most likely estimate an average monthly energy bill, but would have no idea how much each kWh of electricity costs.

[12] CEC Committee Scoping Order, Docket No. 02-IEP-01, December 16, 2002, p. 2.

Comparing commodity prices across utilities, states, and time periods provides an incomplete picture of customers' satisfaction with their energy services.

The CEC is required by statute to include an "evaluation of whether electricity and natural gas markets are adequately meeting public interest objectives including the provision of…low-cost reliable services" in the IEPR.[13] In order to assess whether California's utilities are providing low-cost reliable services, the Price Outlook Reports must include information on current and future average customer bills.

At the February 25'th workshop, CEC staff noted that the draft reports contains information that could be used to calculate average bills. However, the draft reports simply assume that the average residential customer at each utility in California uses 500 kWh per month, with no variation between the utilities. Several utility representatives at the workshop noted that their average residential customer usage is considerably different from this uniform value; for example, SMUD indicated that their average residential customer uses about 720 kWh per month. In addition, the average customer's use is not projected to change over time, even though the Draft Demand Forecast currently projects increasing per capita electricity consumption over time (although the draft forecast excludes the effect of energy efficiency programs going forward). A revised analysis is warranted to accurately assess how well California utilities are meeting their customers' energy service needs.

4. Comparative Cost of Central Station Electricity Generation Technologies

A. Numerous factors other than cost are important when evaluating the merit of a specific technology. In response to the CEC's discussion question, we offer the following suggestions not as a comprehensive list of factors, but as important factors for the CEC to consider in evaluating the merit of a specific technology.

- **Fossil-fueled technologies face considerable risk due to the potential future cost of carbon dioxide emissions.** This risk can be quantified. For example, PacifiCorp's recent Integrated Resource Plan (IRP) evaluates the cost-effectiveness of fossil generation based on the assumption that carbon dioxide emissions will cost an average of eight dollars per ton over the plant's lifetime.[14] This represents PacifiCorp's best judgment based on a comparison of regulatory proposals and actions across North America and Europe; other estimates are substantially higher, and PacifiCorp's IRP also included scenarios with the cost of carbon dioxide emissions at $2 per ton, $25 per ton and $40 per ton.[15] Of course, quantifying the potential cost to Californians of the impact of global warming would be a more accurate means of assessing this risk, but would likely prove to be unmanageable within the timeframe of the IEPR.
- **Certain technologies are inherently exposed to more fuel price risk than other technologies.** For example, natural gas–fired power plants face considerable fuel price

[13] California Public Utilities Code Section 25303(a)6
[14] PacifiCorp, *Integrated Resource Plan 2003.* Available at www.pacificorp.com/File/File25682.pdf
[15] For example, the Energy Information Administration's analysis of one recent and widely publicized Senate bill, the Clean Power Act (S.556), estimated that CO2 allowance prices in 2010 would range from $13-$23 per ton of CO2 (converted from $54-$93 per metric ton of Carbon in the original). EIA publication SR/OIAF/2001-5.

risk, while most renewable technologies and energy efficiency face no fuel price risk. A recent report by Lawrence Berkeley National Laboratory estimates that the value renewables and energy efficiency can provide as a hedge against fuel price volatility is on the order of 0.5 cents per kWh, potentially large enough to tip the scales away from new investments in natural gas-fired generation in favor of investments in renewables and energy efficiency.[16] Alternatively, the cost of a natural gas-fueled technology could be determined by including the cost of a hedged natural gas contract.

- **Different technologies impact public health and our natural environment to varying degrees.** These so-called "environmental externalities" are not accounted for in the cost of the technologies, but can place considerable burdens on society that should be accounted for in evaluating the merits of a technology. The CPUC uses an "adder" to internalize these environmental externalities when calculating the cost-effectiveness of energy efficiency programs.[17]

B. The Comparative Cost of Technologies report should denote whether dollar values and discount rates are nominal or real. It is difficult to assess the input assumptions and results of the Comparative Cost of Technologies report when the dollar values are not denoted as either nominal or real. For example, the natural gas price forecast in Table A-1 would be very different depending on whether the prices are given in real or nominal dollars, however the draft table does not make it clear which convention is used. We suggest the CEC revise the report to clearly denote for all tables, dollar values and discount rates whether the value is in real or nominal terms.

[16] Bolinger, Wiser, and Golove. 2002. *Quantifying the Value That Wind Power Provides as a Hedge Against Volatile Natural Gas Prices.* LBNL-50484. Berkeley, California: Lawrence Berkeley National Laboratory.
[17] See the CPUC Energy Efficiency Policy Manual, October 2001, available at www.cpuc.ca.gov/static/industry/electric/energy+efficiency/rulemaking.htm